

REMARKS

Claims 1-23 were previously pending in the application. Claims 21 and 23 are canceled; claims 1, 5-9, 14, 18-19, and 22 are amended; and new claims 24-25 are added herein. Assuming the entry of this amendment, claims 1-20, 22, and 24-25 are now pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

Claim 21 has been canceled as being restricted out.

In paragraph 3, the Examiner rejected claims 19-20 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement because the term "characteristics" present in claim 19 was unclear. In response, the Applicant amended claim 19 to delete this term and appropriately characterize the link element. The Applicant submits therefore that the rejections of the claims based on § 112, first paragraph, have been overcome.

In paragraph 5, the Examiner rejected claims 1-6, 9, and 14-18 under 35 U.S.C. § 102(b) as being anticipated by Price. In paragraph 7, the Examiner rejected claims 10-11 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Price. In paragraph 8, the Examiner rejected claims 12, 19, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Price in view of Hansen. In paragraph 9, the Examiner rejected claims 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Price in view of Hansen and in further view of Sharp. In paragraph 10, the Examiner objected to claims 7-8 as being dependent upon a rejected base claim, but indicated that those claims would be allowable if rewritten in independent form. For the following reasons, the Applicant submits that all pending claims are allowable over the cited references.

Support for the amendment of claim 1 can be found, e.g., in Applicant's Fig. 4 and page 5, line 24, through page 6, line 13. Claims 14, 18, and 22 are similarly amended.

Claim 1 is directed to a method of signal transmission in a communication system. The method has the step of transmitting an optical beam through a modulator. The modulator is adapted to (i) have a peak of light transmission at a first voltage; (ii) substantially block light transmission at a second voltage greater than the first voltage; and (iii) have another peak of light transmission at a third voltage greater than the second voltage. The method further has the step of driving the modulator with an electrical signal having three or more levels. A first level is outside of a voltage range between the first and third voltages, with this voltage range including the first and third voltages. A second level is either inside the voltage range between the first and third voltages or outside of said voltage range on the opposite side from the first level. A third level is inside said voltage range.

Price discloses a method of transmitting optical duobinary signals, in which a Mach-Zehnder modulator is driven by an electrical signal having three voltage levels, $-a$, 0, and a . The Mach-Zehnder modulator has respective peaks of light transmission at voltage levels $-a$ and a and substantially blocks light transmission at voltage level 0.

In the rejection of original claim 1, the Examiner considered Price's voltage levels $-a$ and a as being located outside of the voltage range between those two levels.

The amendment of claim 1 now defines the voltage range between the first and third voltages as explicitly including the first and third voltages. Under this definition, both Price's voltage levels $-a$ and a fall inside the range between those levels. Thus, Price's voltage levels $-a$ and a can no longer serve as examples of the first level recited in claim 1.

Hansen discloses an optical filtering and multiplexing scheme. The Examiner did not contend that Hansen teaches or suggests any relevant voltage configurations for driving an optical modulator.

Sharp discloses a method of generating optical signals by overdriving a Mach-Zehnder modulator. The method of Sharp utilizes only two voltage levels (see, e.g., Sharp's Fig. 2). The Applicant submits that Sharp does not teach or even suggest driving the modulator with an electrical signal having three or more levels, as required by claim 1.

For all these reasons, the Applicant submits that claim 1 is allowable over the cited references. For similar reasons, the Applicant submits that claims 14, 18, and 22 are also allowable over the cited references. Since claims 2-13, 15-17, and 19-20 depend variously from claims 1, 14, and 18, it is further submitted that those claims are also allowable over the cited references. The Applicant submits therefore that the rejections of claims under §§ 102 and 103 have been overcome.

Support for the amendment of claim 5 can be found, e.g., on page 6, lines 4-13. Amended claim 5, which depends from claim 1, now specifies that the second level is inside the voltage range between the first and third voltages and is different from any one of the first, second, and third voltages. The Applicant submits that the cited references, independently or in combination, do not teach or suggest such a combination of features. These facts provide additional reasons for the allowability of claim 5 over the cited references.

New claim 24 is equivalent to original claim 7 rewritten in independent form. Since original claim 7 was indicated as allowable, the Applicant submits that claim 24 is allowable.

Support for new claim 25 can be found, e.g., in original claim 8. Since claim 25 depends from allowable claim 24, it is submitted that claim 25 is also allowable.

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

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